

ABSTRACT

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An integrated development environment wherein there is a tight coupling between a design surface providing a visual representation of the various physical and logical entities in a software model and the underlying code structures that support the entities is disclosed. The model can include varying combinations of a component model, a high level design whiteboard, or a physical model. Every object defined within the design surface is capable of being mapped directly to an underlying code structure. The mapping is under the control of the user, that is, the user can determine when and which entities to map to code, thereby providing an environment in which an application can be "whiteboarded", and code can be generated as the design stabilizes. The model is a graphical representation of the actual code, thus providing two way updating, i.e., the model is updated when the programmer changes the code and vice versa. In addition, code changes propagate across objects of the graphical modeling tool. As a programmer develops the underlying code, each object within the model can be bound to the code. The development environment can interface with a graphical debugger and a run-time analyzer that integrates runtime information from the underlying code such that the programmer can easily test, modify and verify the software model.

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